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- Book Reviews

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# CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

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Certain articles in this *Journal* are listed in *Psychological Abstracts*.

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Please note these corrections in the following items of the Gifted Child bibliography.

- 60. Add New York: Ronald Press, 1950.
- 124. Should read Los Angeles instead of Sacramento.
- 143. Omit 1951.
- 153. Date is 1933.
- 199. Author is Wolfle, D.



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## The Editors Say:

### " . . . The Whites of Their Eyes!"

The recent appearance of the study group booklet for the Cooperative Study of Elementary Education in California caused us to re-read our editorial of last May. Was the booklet a close companion to the research project which we thought we were writing about at the time? Was the forest in the way of the trees?

It appears that the booklet is the kind of research which may more nearly be regarded as "opinion sampling" or "policy polling." We shall have to wait to see the manner and extent to which this kind of research will demonstrate or spell out what is "needed" in elementary education. At first glance, the booklet will report what is "wanted" in elementary education, in the sense of being "desired."

Now this is, indeed, a necessary first step. Desires are capable of being translated into needs. We see this progression all around us. However, we shall have to be astute enough to remind all those involved that desires and needs do not inevitably form an equation. Assuming that the project produces a fully justified "want list," those of us in educational research will still have the job of establishing by factual evidence just what procedures, facilities, materials, and people are required to come as close as possible to satisfying these wants. Subsequent publications will undoubtedly enter into this kind of detail.

CESAA's *Are These the Characteristics of the Good Elementary School?* will give us a new definition. Research will have to go beyond this point to settle the questions of implementation. This distinction is made not to decry the usefulness and desirability of the process of definition. The good researcher always knows this to be his opening task. We are merely reminded that in our editorial of last May we surely drew too quick a bead on the target. For school personnel the sharpshooting can begin after this initial study has been fully evaluated.

# Research Aspects of the COOPERATIVE STUDY OF ELEMENTARY EDUCATION IN CALIFORNIA

GLENN E. BARNETT

The several thousands of persons already at work in the Cooperative Study of Elementary Education in California sponsored by the California Elementary School Administrators' Association includes many research workers in the State. For these persons, as well as those who may soon be asked to participate, it seems appropriate to report the progress of the study and to discuss in some detail certain of its research aspects. The latter purpose of this paper is especially pertinent to readers of this Journal, both because the Study promises to have far-reaching influence on school practice and because other educational groups in the State are considering its method as an approach to problems in their particular fields of interest.

## Progress of the Study

1. *The problem of the Study.* To appreciate the progress of the Study, the reader must understand what it is, and what it is not. Its specific purpose is to discover what constitutes a "desirable" educational program for the elementary schools of California through research jointly planned by lay citizens and professional school people. In this instance, the term "desirable" has two specific meanings: (1) desirable, meaning that which has been established by careful investigation as most successful school practice; and (2) desirable, meaning those practices which the people of the State actually want to exist in their schools. The research, therefore, has two distinct parts: (1) the collection and evaluation of evidence concerning successful school practices, and (2) the submission of the findings of part one to the people in the State to discover those practices which they indicate to be those which they wish to see in their elementary schools.

2. *The method of the Study.* Because a number of reports presenting the Study in detail have already appeared in easily accessible journals (see references), the method of the Study is presented here only briefly.

To establish the most successful practices for the elementary school program, six area committees were established at strategic centers. Meeting at institutions of higher learning and aided by consultants from those institutions, each of these committees brought together as evidence of successful practice all reports of research, practice, and expert opinion regarding the specific area assigned to them. Each of these groups, during the 1953-54

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*Dr. Glenn E. Barnett is Executive Secretary of the Study and Associate Professor of Education, University of California, Berkeley. The Cooperative Study has the financial backing of the Rosenberg Foundation.*

school year, collected a voluminous amount of such material, and in some cases sponsored specific researches.

From these materials, the committees took the major ideas, expressed them as characteristics of a good elementary school and submitted them to a Review Board as statements on which the people of the State might possibly agree. Though the area committees themselves were made up of lay and professional people, the plan of the Study included the carefully selected group called the Review Board to offer expert guidance as to what ideas were most likely to gain acceptance statewide. This group was made up of forty-four people, one-half of whom were representatives from lay groups which had an interest in education and one-half of whom represented professional education organizations. As first presented, these statements numbered 184. After revision in terms of Review Board suggestions at two lengthy meetings, the number of statements is now 110. They are published in pamphlet form under the title, "Are These the Characteristics of the Good Elementary School?" by the CESAA.

To discover what the people of the State actually desire for their elementary schools, more than 6,000 copies of this booklet are now in the hands of members of more than 500 study groups. Persons in these groups will indicate their agreement or disagreement with the statements, suggest changes in them, and perhaps recommend that some be deleted and others added. Reports from these study groups will be compiled and the results used to guide revision of the initial statements. In its final form, the statement of characteristics of elementary schools will be published as a report, developed by the area committees, with which a large sampling of the people of the State have expressed agreement.

3. *Steps Ahead.* As was noted above, the statement of characteristics as drafted for study groups has been published and is being used. According to schedule, reports from these groups will be made to project headquarters no later than April 1 so that findings may be incorporated in the final draft of the statement at the May meeting of the Review Board. This revised report will appear both as a single document and as a part of the Twenty-seventh Yearbook of the Association.

The detailed reports of the area committees which are the bases of the statements of characteristics will be published in pamphlet form and are expected to be ready for publication beginning early in the next school year.

A third project of the Association, related to the Study, is the use of the statement of characteristics to discover and report good practice. The yearbook which carries the statement of characteristics will also describe actual practices which show the characteristics in operation in the schools of the State.

The Association recognizes that the work of this Study offers a basis for additional activities and has appointed a committee to explore how results of the project may be put to most effective use.

## The Study from a Research Point of View

The reader who has followed the development of the Cooperative Study is aware that the project has seen considerable refinement from the moment it was first proposed. The ambitions of its early proponents included some aims which were both unrealistic and difficult of attainment. The Study has, however, become more clarified as it has progressed and now offers to the research-minded, distinct possibilities of reliable findings. It has, in addition, some implications for projects commonly called "action research." And finally, it offers some clues as to a successful method of bringing research and practice more closely together.

As the Study is presently proceeding, it promises new discoveries as to points of agreement and disagreement by the people of the State as regards their elementary schools. The statements to which people will react have been developed under a describable jury system and reports from the groups will be such that a collection of usable data and analysis in some detail will be possible. Parenthetically, it should be added that reports are limited to the kind of information which group reporters may be reasonably expected to furnish.

A second possible area of findings is expected from the analysis of careful records of ideas and reactions to them at Review Board meetings. These records offer an opportunity for a careful study of reasons for acceptance and rejection of a number of ideas about educational practice.

In addition, the Steering Committee of the Study has authorized a number of studies in connection with the process itself. These will include careful attention to an analysis of who participated in the Study, how these persons regarded their participation and the actual reports of the project with reference to this participation.

These three areas of investigation are complementary to the major purpose of the Study which is to encourage effective lay-professional cooperation in the development of elementary education in California. In stimulating such activity, the Study has had considerable success. Claims as to its effectiveness can only be projections of opinion. It seems clear that the Study is based on the assumption that some improvement will inevitably be made in elementary school practice because such a large number of persons will be thinking together about their schools. Whether this assumption is fact or fancy can only be tested in the years which lie ahead.

## Problems of the Study

It is now clear that the process of the Study will not eventuate in a description of desirable elementary school practice which will be acceptable to all. Moreover, it is likely that it will not present all the best practices as established by research. Because it will present a consensus of what the

people think, it will be a compromise document. To some, it will therefore be behind their best thought. Perhaps this is as it should be, for the best educational research and thinking should always point the way for educational progress.

The Study, too, will bear the imprint of the people who were associated in its work. It will display the influence of the relative competence of group leaders, the different understandings of the statements of characteristics, the influence of local school practice on discussions, the degree of thoroughness of the various area committee reports and the thinking of the members of the Review Board. Its "human error" is compounded by its vast number of participants.

One of the most questioned aspects of the Study is its organization. What should be the Review Board's handling of a "characteristic" submitted by one of the area committees has been widely discussed. Should a statement which might well be accepted by most persons in the study groups be presented to them prior to deletion or major revision by the Review Board? Who would determine which were such statements?

Another and more critical problem grows out of the factors which operate in the selection of the persons who participate in such an undertaking. That invitations are widely given and volunteers accepted for each phase of the project is hardly a sufficient answer.

Perhaps the Study will have some helpful leads toward solving these problems when its results have been assessed.

## Summary

The Cooperative Study of Elementary Education in California is in its second year as a major undertaking. It is based on a number of assumptions centering about a belief that the schools belong to the people; and that when these people work together for good, the schools can achieve remarkable progress. The Study has already established a number of characteristics of elementary schools which are being submitted to some 500 study groups in the State for reaction. It will shortly publish a report of those characteristics which are considered desirable by California's citizens. Present indications are that the Study will have great influence on practice in the elementary schools and may also pioneer a method by which organizations operating at other levels in the schools will seek some solution to their problems.

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# Psychological Factors Associated with Aspirations for Socio-Economic Mobility

BUFORD STEFFLRE

Research on the subject of social class and movement from one status level to another has recently attracted much attention in educational and psychological circles. Many educators are convinced that a knowledge of socio-economic background opens up an important new dimension in the understanding of the individual.

## The Problem

The present study is designed to learn how the adolescent boy who plans to work at the same occupational level as his father differs from the one who plans to work at a different level. More specifically, the study investigates whether there are ability, temperament, and interest differences associated with aspirations for socio-economic mobility as measured by occupational goals. Further, it attempts to determine whether such differences vary with the occupational level of the boy's home.

## Procedure

The procedure used in this study consists of examining the counseling records of all the white, senior boys counseled by a vocational counseling service in a metropolitan urban area during the school year 1950-51 and testing the significance of differences in scores on ability, temperament and interest tests of the three groups—those aspiring to upward mobility, to stability, and to downward mobility.

The first step was to classify, on the basis of the Alba Edwards' scale, the parent occupation (socio-economic status) of each boy as well as each boy's vocational goal (aspiration level). This dual classification permitted grouping cases into various home levels and various aspiration directions.

Groups at each home level were then examined with regard to scores on tests measuring eight ability factors (SRA-Primary Mental Abilities, the Factored Aptitude Series Memory Test, and the Progressive Matrices), ten

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temperament factors (Guilford-Zimmerman Temperament Survey), and one interest factor (Level of Interest of the Occupational Interest Inventory). Tests were made of the significance of differences in these factors among the three groups at each parent occupation level. Further comparisons were made by grouping the top three levels on the Edwards' scale into a "white collar" classification and the bottom three levels into a "manual" classification. Finally, all boys were combined into their major inclusive categories, upward mobile, stable, and downward mobile. In this brief summary only the findings relative to the "white collar" vs "manual" comparisons and the findings with regard to the total group will be discussed. A further limitation will be made by discussing only temperament and intelligence differences while making no attempt to relate the findings for interest testing.

## White Collar Home Background

In this context the term white collar refers to the first three levels of Edwards' scale: professional, managerial and official, and clerical; while manual refers to skilled, semi-skilled, and unskilled.

The boy from a white collar home who selects a white collar vocational objective (W) and hence is aspiring to stability at the white collar level, has the vocational aspiration pattern of the large majority of his peers and is most likely to choose a professional objective. He is clearly superior in ability and is characterized by a temperament which is restrained, thoughtful, ascendant, and sociable.

The boy from a white collar home who aspires to a manual objective (w) is following the vocation aspiration pattern of a small minority of his peers. He is most apt to have selected a skilled occupation. He is significantly inferior to the two groups aspiring to white collar occupations in every ability except space. He is very much like the boy from the manual home who aspires to remain at the level since he differs from him significantly only in being inferior in space. In temperament, he is significantly more impulsive, submissive, and concerned with overt activity than are the boys aspiring to white collar occupations. He is also more interested in masculine activities, more shy, and more hostile than the boy from his same home level who aspires to remain at that level. In summary, this boy is characterized by low abilities, and by impulsiveness and concern with overt activity. The relationships referred to in this and preceding paragraphs are shown in tables I and II.

## Manual Home Background

The boy from a manual home who aspires to remain at that level (M) is following the aspiration pattern of a minority of his peers and is most apt to have selected a skilled objective. He differs from the boys aspiring to

TABLE I  
Intelligence Factors and Mobility Aspirations  
White Collar vs Manual

Factors			Comparison		W-M	w-m
	W-m	W-w	w-M	m-M		
Verbal Meaning	**	**	**		**	**
Space			*		*	
Reasoning	**	**	**		**	**
Number	**		**		**	**
Word Fluency	**	**	**		**	**
Memory	**		**		**	**
Perceptual Speed	**		**	*	**	**
Reasoning (Matrix)	**	**	**		**	**

Key: \*\*Difference at 1 per cent level in favor of first named group.

\*Difference at 5 per cent level in favor of first named group.

W—White collar home and white collar aspiration level; N-726.

W—White collar home and white collar aspiration level; N-726.

w—White collar home and manual aspiration level; N-316.

w—White collar home and manual aspiration level; N-316.

white collar occupations in being significantly inferior in all abilities, and more concerned with overt activity. He is very much like the boy from a white collar home who aspires to manual occupations differing only in that he exceeds him in space. He is also more phlegmatic, more submissive, more shy, more hostile, and more intolerant in personal relations than the

TABLE II  
Temperament Factors and Mobility Aspiration  
White Collar vs Manual

Factors			Comparison		W-M	w-m
	W-m	W-w	w-M	m-M		
General Activity					*	
Restraint	**		**		**	**
Ascendancy	**	**			**	*
Sociability	**	**			**	
Emotional Stability						
Objectivity			*		**	
Friendliness	**	*			**	
Thoughtfulness	**	**	**		**	**
Personal Cooperation		*			*	
Masculinity	*			*		

Key: \*\*Difference at 1 per cent level in favor of first named group.

\*Difference at 5 per cent level in favor of first named group.

M—Manual home and manual aspiration level; N-176.

M—Manual home and manual aspiration level; N-176.

m—Manual home and white collar aspiration level; N-131.

m—Manual home and white collar aspiration level; N-131.

boy from a white collar home who aspires to stability. In summary, he is most like the boy from a white collar home who aspires to a manual occupation and least like the boy from a white collar home who aspires to a white

collar occupation. He is characterized by very low ability, by impulsiveness, and by concern with overt activity.

The boy from a manual home who aspires to a white collar occupation (m) is following the aspirational pattern of a majority of his peers and is most apt to have selected a professional occupation. In practically all factors he falls between the white collar stable aspirant and the boys selecting manual objectives. He occupies this same mid-position in his concern for overt activity. He is more restrained than the manual aspirants, more submissive and shy than the boy from a white collar home who aspires to stability at that level. In summary, this boy is generally strong in ability and his temperament is characterized by restraint and thoughtfulness. He occupies a position midway between the manual aspirants and the stable white collar aspirant, since he is brighter than the former but duller than the latter, and is more thoughtful than the former but more concerned with overt activity than the latter.

## Findings for the Total Sample

In summarizing the over-all findings for the total sample it can be said that out of every 100 boys in this sample, 58 aspire to upward mobility, 26 to stability, and 16 to downward mobility.

The upward mobile boy is most apt to be aspiring to a professional occupation. It is impossible, by definition, for his home level to be professional and it is most unlikely that it will be unskilled. His abilities are generally above average and superior to the aspirants for stability or downward mobility. In temperament he is significantly more restrained than the other two groups. He is also more emotionally stable, more objective, and more thoughtful than the downward mobile boy. In most cases his temperament scores are lower than that of the stable aspirant.

The boy who aspires to socio-economic stability is most apt to be selecting a professional or skilled occupation. His abilities tend to fall between the upward mobile and the downward mobile. In temperament he practically always makes higher scores than either of the other groups. He is significantly more impulsive than the upward mobile, more ascendant and more emotionally stable than the downward mobile. He can be characterized as being average in ability and as making higher temperament scores than either of the other groups.

The downward mobile aspirant is probably selecting a skilled occupation. His abilities are inferior to the other boys by margins which are statistically significant in practically all factors. His temperament scores tend to be lower than the others. He can be characterized as being low in abilities, as selecting lower level jobs in counseling and as being impulsive, unstable, concerned with overt activities, subjective, and shy. The relationships discussed in this section are shown in Tables IV and V.

TABLE III  
Intelligence Factors and Mobility Aspiration  
Total Sample

Factor	Comparison		
	Upward vs Stable	Upward vs Downward	Stable vs Downward
Verbal		**	**
Space		**	
Reasoning		**	**
Number		**	*
Word Fluency	*	**	**
Memory	*	**	*
Perceptual Speed	*	**	**
Reasoning (Matrix)	**	**	**

Key: \*\*Difference at 1 per cent level in favor of first named group.

\*Difference at 5 per cent level in favor of first named group.

N's: Upward, 767; Stable, 357; Downward 225.

## Conclusions

In general, the ability, interest, and temperament findings seem more associated with the goal level than the direction of aspiration. There seems to be a similarity among the aspirants for white collar occupations and a similarity among the aspirants for manual occupations, but a great difference among the stable aspirant at these two levels. The most important conclusion to be drawn from the study seems to be that it is less accurate to talk of an upward mobile type, a stable type, and a downward mobile type than it is to talk of white collar and manual types. Ability and temperament seem as closely associated with the level the boy is hoping to reach as they do with the direction of his movement.

TABLE IV  
Temperament Factors and Mobility Aspiration  
Total Sample

Factor	Comparison		
	Upward vs Stable	Upward vs Downward	Stable vs Downward
General Activity			
Restraint	*	**	
Ascendence			*
Sociability			
Emotional Stability		*	*
Objectivity		*	
Friendliness			
Thoughtfulness		**	
Personal Cooperativeness			
Masculinity			

Key: \*\*Difference at 1 per cent level in favor of first named group.

\*Difference at 5 per cent level in favor of first named group.

N's: Upward, 767; Stable, 357; Downward 225.

The findings regarding ability differences are neither startling nor unexpected, but the study seems to have thrown new light on the temperament of the striver for mobility. He is above all restrained and thoughtful. The boy who is stable at a lower level or moving downward to a lower level is conversely impulsive and concerned with overt activity. The middle class, or white collar, temperament is restrained and thoughtful and it is sensible that this finding should occur, for the middle class demands putting off immediate gratifications for eventual status security.

The analytic concept that poor adjustment leads to mobility is more probable with regard to the downward mobile than it is with the upward mobile.

The speculation by such writers as Kinsey that children very early in life take on the coloration of the social level they are moving toward seems to be well supported by this study, since those aspiring to work at manual occupations are much alike regardless of the social level of their parents. Since there is a relation between desire to move upward and abilities recognized and valued in school it may be concluded that education is being used as a very common method of achieving mobility. This situation also indicates that the screening and selecting process is operating in the schools, and that guidance is probably effective in pointing out to these brighter children that they may reasonably aspire to higher occupations. By and large we see that the duller from each social level aspire to downward mobility, the brighter to upward mobility. Of course this might well occur without guidance but it is a situation which guidance would aim at achieving.

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The Department of Statistical Analysis of the Educational Testing Service scaled 190 tests during the 1953-1954 academic year according to the Annual Report of ETS. During this same period, ETS scored 678,311 individual tests for eighteen different programs, including College Entrance Board Examinations, National Science Foundation Fellowship Testing Program, and entrance examinations for West Point and Annapolis. The examinations were conducted at 7,942 different testing centers.

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The Tax Foundation, Inc., has published a booklet on *Public School Financing 1930-1954*. This appears to be a report of a sound study of the subject. However, the interpretations given the data are such that it would appear well for great caution to be exercised in making use of any of the conclusions. Educators interested in school finance should, however, probably look this publication over in order to be in a position to counteract any groups who make use of its biased interpretations. Copies may be secured from the Tax Foundation at 30 Rockefeller Plaza, New York 20, New York.

# Importance and Significance of Objective Test Items

HAROLD D. CARTER

How valid are the opinions of critics who try to point out the trivial or insignificant items in objective tests of achievement? This question is, of course, sufficiently complicated to make it impossible to answer finally and completely in any one study. In spite of the difficulty, however, the question merits investigation because of the theoretical and practical significance of the issues involved.

Almost any discussion of the relative merits of objective and essay-type examinations is likely to point out that objective tests tend to include trivial and unimportant items. As early as 1934, Brownell (2) pointed out some of the tendencies toward superficiality inherent in objective testing techniques. At the same time, he recognized the values of objective tests. In Chapter Four of his book on measurement, Ross (11) recommended editorial revision of objective tests, to guard against inclusion of objectionable items. He also specifically recommended having the items criticized by persons who take the tests. Students in high school and college, as well as teachers, commonly assume that objective tests contain some items that deal with completely unimportant matters. Many critics accept this "common-sense" view. If one goes further, and tries to point out which items are more important and which are less significant, the limitations of inspectional techniques become apparent. Individual critics cannot agree very well, and the need for some objective criterion of importance becomes evident.

Probably many studies will be needed to clarify the issues. The present study was designed to assemble some descriptive facts, the interpretation of which might bring to light a basic pattern in the evidence.

## Data and Procedure of This Study

1. **The Test.** An objective test containing 100 true-false items was constructed for use in the study. The test, which was designed to cover chapters 1, 3, 4, 5, and 6, in Freeman's text (9) was used as a first mid-term examination, as an example of objective testing, and as a basis for

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discussion, in a course on tests and measurements. More than half of the items in the test were constructed by the teacher of the course, but some were written by graduate students who had served as teaching assistants. The split-half reliability coefficient for the test was .74, for a group of 134 students in two classes. The test had not previously been item-analyzed; like most unimproved tests, it appeared to include some definitely faulty items, and seemed on the whole to be a bit too easy.

The test, then, appeared very well suited to the purpose in hand, for it is well known that in such a newly-constructed instrument the probability is high that it will contain some non-functional items, some ambiguous, some too simple, some too difficult, and even some items which will discriminate negatively; that is, items which are missed more often by good students than by poor students. A faulty test was appropriate for this study. If inspectional techniques are effective for evaluation of test items, then the students in the course should be able to pick out the items that are faulty. It cannot be expected, of course, that they can have perfect insight; one may merely assume that they have some degree of insight.

**2. The Students.** The test was administered as a mid-term examination to a group of eighty-nine students in a summer session course on psychological testing. Students in the course were teachers, undergraduates, and graduate students in Education. As is common in summer classes in Education departments, the group included many experienced teachers, counselors, and administrators who were seeking higher degrees or credentials, hence it happens that the students were somewhat older than those in fall and winter classes. In the opinion of the instructor and the assistants, the students were critical, serious-minded, cooperative, and above-average in both achievement and intelligence, as compared with typical upper division college students.

**3. The Statistical Analysis.** A simple item-analysis of the test was carried out by tallying the errors made on each item of the test by each of the twenty-five highest-scoring students and by each of the twenty-five lowest-scoring students in the class of eighty-nine. This permitted comparison of the error frequencies for the top and bottom groups (each approximately 28 per cent of the class). As a measure of the discrimination power of the items, the difference in errors for the two groups was used. As a measure of the difficulty of the items, the sum of the errors for the two extreme groups was used. Earlier work (4) has indicated that this difficulty measure agrees very well with that which might be obtained from the middle groups of students, who were not included in this analysis.

This statistical item-analysis is of the common type which uses the total test score as the criterion for evaluation of each item. An item is thus judged to be good if it agrees with the total test, and poor if it disagrees with the total test. Since an achievement test has face validity, or content validity,

the total score seems justifiable as a criterion. The procedure involves the assumption that the total test, which samples the material in the textbook, is valid, while some specific items in the test, for various reasons, may be faulty. This logic is acceptable to most students, especially to those who give the matter careful thought.

4. **The Rating Data.** When the students took the test, they recorded their responses on a special answer sheet. These answer sheets were collected. The students retained the test booklets, and were given special rating sheets for recording their ratings of the significance or importance of the items in the examination. A rating of 4 meant that the student regarded the item as dealing with something very important or significant; a rating of 2 meant that the item was regarded as just average, having some value; a rating of zero meant that in the opinion of the student the item dealt with some useless or worthless bit of information. Ratings of 3 (above average) and of 1 (below average) indicated intermediate positions on the scale. After each student rated each item in the test, the rating sheets and test booklets were collected. The students were rather pleased at having the opportunity to express their opinions in this manner.

## Results from the Statistical Item-Analysis

A sample of the data from the statistical analysis of items in the test is presented in Table I. This study is primarily concerned with the differences

TABLE I  
Sample Results from the Item-Analysis

Item Number	<i>Errors</i>		Difference (W) — (B)	Sum (W) + (B)	Per Cent Sum Is of Possible Errors
	25 Worst Students (W)	25 Best Students (B)			
4	5	0	5	5	10
24	3	3	0	6	12
21	2	7	-5	9	18
46	7	2	5	9	18
43	0	0	0	0	0
59	1	0	1	1	2
15	18	15	3	33	66
51	21	9	12	30	60

in errors and the sum of the errors. The first quantity provides for each item the raw measure of discrimination, or the degree to which an item is harder for the worst students than for the best-informed students. The second of these quantities indicates the total number of times an item was missed by students in the total group of fifty for whom results were tallied.

This is the raw measure of difficulty of items used in this inquiry. In the last column of Table I this difficulty measure is transformed into a percentage of the total number of errors possible for the fifty cases.

Although more complicated techniques of expressing the discrimination measure and the difficulty measure are often used, experience has indicated that these simple techniques are adequate for many purposes. Earlier work (4) has shown that the difficulty measure as described above is highly reliable, and that it agrees very well with that measure of difficulty which would have been obtained if the total group (including the middle group) had been used. The two measures, one of discrimination power of items, and the other of difficulty of items, are among the most useful measures which can be obtained through item-analysis. The reader is referred to a report by Davis (7) for a more comprehensive discussion of item-analysis techniques.

Table I presents a sample of the findings. Item number 4, for example, is seen to be an easy item which discriminates as well as it possibly could in view of its low difficulty level. Item 24 is paired with it as an example of an item of similar difficulty which does not discriminate between well-informed and poorly-informed students. Item 21 is an example of a true-false item of a type which is fairly easy, and negatively discriminating. Such an item should be revised or discarded. Item 46 is paired with it, as an item of the same difficulty level which discriminates in the right direction. Items 43 and 59 are examples of items which are so easy as to be useless; such items tend to be all too prevalent in unanalyzed true-false tests. Items 15 and 51 are very difficult true-false items; one of these discriminates very well, the other hardly at all. In the context in which it was used, Item 15 was ambiguous.

Table II presents the items for which data are given in Table I. No doubt many readers will be interested in comparing the two tables. The items are presented here, not as examples of good items, but as examples of mixed good and poor items such as do commonly occur in objective tests. In this instance, the items deal with topics carefully discussed in the textbook; if the topics merit discussion in the textbook, then presumably they merit coverage in the examination.

Previous experience (5) has shown that the revision of course examinations by the techniques listed above is very simple and economical, and it definitely is effective for improving the reliability of the tests. No doubt it tends to make the tests give less representative coverage of textbook content, since it tends to result in omission of topics which seem obvious or superficial. It tends to limit the measurement to concepts and facts which seem to require some learning.

Table I presents only a sampling of the data, and gives no idea of the range and distribution of the two important measures provided by the item-

analysis. Hence Tables III and IV have been prepared. Table III shows the frequency distribution of item-discrimination measures for the 100 items in the test. The range is from raw scores of -5 and -6, which characterize the very faulty items, to raw scores of 16 and 17 which indicate items that are unusually effective according to this criterion. The mean of the discrimination score is 6.24. Ordinarily one would make practical use of these item-indices by discarding the least-discriminating items; the supply of items available would indicate the practical limits in the selective process.

TABLE II  
Test Items Analyzed in Table I

Correct Response	Item
True	4. Arranging the items in a test in order of difficulty from easy to hard tends to make odd and even halves of the test of equal difficulty.
True	24. Wechsler's definition of intelligence is a re-statement of parts of the definitions of Binet and Terman.
True	21. There have been some marked divergences between theory and practice in mental measurement.
True	46. Kuhlmann used increase in raw score from age to age as one of the criteria in judging the validity of intelligence tests.
False	43. The types of tests used in Binet's 1905 scale have long since been discarded by psychologists.
True	59. Using the 1916 Stanford-Binet, Terman placed the average adult M.A. at approximately 16 years.
False	15. Theoretically a test should never contain any items that can be passed by every person to be tested.
False	51. Kuhlmann grouped the tests in his latest revision of the Binet scale according to age levels.

However, analysis carried out in an earlier report (4) following the idea of standard error of measurement, indicated that when this method is used, with samplings of this size, items with discrimination indices of plus 4 or higher do discriminate reliably in the right direction.

Table IV presents the frequency distribution of item-difficulty measures, for the 100 true-false items in the test. Here the range is from zero (indicating an item nobody misses) to 33 (the index of an item missed by 66 per cent of the students). These data suggest that the test, like most untried true-false tests, contains too many easy items. The mean difficulty score is 12.22, meaning that the average item was missed by 24 per cent of the students. True-false tests can be markedly improved by a process of

TABLE III

Distribution of Item-Discrimination Indices

<i>Error Difference Scores (25W) - (25B)</i>	<i>Frequency</i>
16-17	2
14-15	5
12-13	3
10-11	8
8- 9	12
6- 7	25
4- 5	24
2- 3	13
0, 1	5
(-1) - (-2)	1
(-3) - (-4)	1
(-5) - (-6)	1
<b>Total</b>	<b>100</b>

TABLE IV

Distribution of Difficulty Measures

<i>Total Errors</i>	<i>Frequency</i>
33-35	1
30-32	3
27-29	2
24-26	5
21-23	4
18-20	6
15-17	8
12-14	14
9-11	21
6- 8	20
3- 5	12
0- 2	4
<b>Total</b>	<b>100</b>

Note: This table should be read as follows: From 33 to 35 student errors were made on one item, from 30 to 32 student mistakes were made on each of 3 items, and so on.

repeated selection of items, eliminating those missed by fewer than ten per cent of the students.

The material in Tables I, III, and IV indicates a simple way of improving objective tests. The procedure is economical of time, taking less than three hours for the item-analysis of the entire test. Revision of such a test through this type of item-analysis is remarkably effective for improvement of reliability, which can be measured objectively, and of validity, which can be logically inferred. The latter consideration, of course, involves subjective judgment.

## Results from the Rating Procedure

A sample of the rating data is presented in Table V, which shows how fifteen students rated the items listed in Table II. These data show that the same item may be rated 3 (above-average) or 4 (very important) by some raters, and at the same time rated 1 (below average, almost worthless) or 2 (just average) by some other raters. It is apparent that the judgment of an individual item by an individual rater is a highly unreliable thing. Remembering Table I, we note that items 24, 21, 43, 59, and 15 were seriously deficient, for various reasons. Comparing the ratings in Table IV, for items 4 and 24, we find that low-achieving students did not discriminate as did the average and high-achieving students, whose ratings seem more valid. Comparing items 21 and 46, again it appears that the

ratings assigned by average and superior students are more correctly discriminating, while those of low-achievers show lack of insight. Comparing items 43 and 59 tells us nothing; both items are useless. Comparing items 15 and 51, we find general agreement favoring the ambiguous item. All of these indications are tentative and unreliable. This small sample of data does not indicate that high-achievers or average-achievers rate items more favorably than do low-achievers.

TABLE V  
Sample of Ratings Given to Test Items

T-Score			Test-items rated:							
Test Items			4	24	21	46	43	59	15	51
Low Achievers										
Rater 1.	28		1	4	4	2	3	4	4	2
" 2.	29		4	3	4	2	4	3	4	4
" 3.	29		3	2	3	3	3	4	2	3
" 4.	30		1	2	2	2	1	3	4	2
" 5.	35		3	3	3	0	4	3	3	1
Sum of ratings			12	14	16	9	15	17	17	12
Average Achievers										
Rater 36.	50		3	2	4	3	3	4	2	3
" 37.	50		3	2	3	4	3	3	3	3
" 38.	50		4	2	2	2	3	3	3	2
" 39.	51		3	2	2	2	3	3	3	2
" 40.	51		3	3	1	2	1	1	3	1
Sum of ratings			16	11	13	14	12	14	14	12
High Achievers										
Rater 71.	66		4	2	3	3	3	3	4	2
" 72.	67		4	3	3	3	3	4	4	3
" 73.	68		2	2	3	3	4	2	2	2
" 74.	68		3	2	1	3	3	0	2	2
" 75.	70		3	2	2	2	2	2	3	2
Sum of ratings			16	11	12	14	15	11	15	11

In Table VI are presented correlations between the composites of ratings provided by various groups of raters. These correlations show that there is substantial agreement among raters when a sufficient number of persons rate the items. In studying the attitudes of students toward test items, we are dealing with matters of opinion. The opinions of individuals seem to be unreliable, but there is evidence of general agreement among groups. These data do not show whether the opinions are right or wrong, based upon good judgment, or characterized by lack of insight.

We may ask a further question. Do the ratings agree with the results of the statistical item-analysis? The answer is significant, whether we use

the latter measure as a criterion, or whether we choose to regard the two measures as independent variables, each having value for different reasons.

TABLE VI  
Correlations Between Summed Ratings

Groups Correlated		<i>r</i> between Summed Ratings ( <i>n</i> is 100 items)
Groups of five raters		
Raters 1-5 with raters 36-40		.32
Raters 1-5 with raters 71-75		.27
Raters 6-10 with raters 16-20		.53
Raters 36-40 with raters 71-75		.38
Raters 66-70 with raters 71-75		.66
Weighted mean of correlations		.46
Groups of ten raters		
Raters 1-10 with raters 16-25		.60
Raters 1-10 with raters 36-45		.57
Raters 1-10 with raters 66-75		.60
Raters 36-45 with raters 66-75		.68
Raters 51-60 with raters 66-75		.63
Weighted mean of correlations		.62
Groups of twenty-five raters		
Raters 1-25 with raters 26-50		.81
Raters 1-25 with raters 51-75		.81
Raters 26-50 with raters 51-75		.87
Weighted mean of correlations		.83

For evidence on the question, we turn to Table VII, which shows the correlations between the summed ratings and the two statistical measures provided by the item-analysis. Here again there is a slight indication that

TABLE VII  
Correlations Between Summed Ratings of Grouped Raters and  
Statistical Measures

Rater Groupings	Correlations ( <i>r</i> )	
	with Difficulty Measure	with Discrimination Measure
25 Lowest Achievers	-.21	-.13
25 Average Achievers	-.21	.01
25 Highest Achievers	-.30	.02
Entire Class of 75	-.25	-.02

Note: *N* is 100 test items.

the low-achieving students made less insightful ratings, for their ratings correlated negatively with the measure of functional discrimination value of the items.

Apart from this one merely suggestive indication, the data present a consistent picture. The students tend to give higher ratings to the easier items, as shown by the negative correlations with the measures of item-difficulty. Their ratings are independent of the statistical measure of the power of items to discriminate between well-informed and poorly-informed students.

These results support the tentative hypothesis that the opinions of students regarding the validity of test items are in a certain sense superficial and incorrect, or not insightful. On the other hand, the data in Table VI, and some of the other evidence, suggest that there is sufficient agreement among raters to justify further inquiries as to possible values to be derived from the ratings. The data provide tentative indications that the ratings from average-achieving and high-achieving students are worthy of more consideration than the ratings from low-achieving students. These data, moreover, are probably significant in relation to the arguments frequently set forth concerning improvement of objective test-items through various editing procedures.

## Implications

The uses of tests in the public schools are often taken for granted, but the effect of opinion upon test practices is a potent force. It is the determining factor in making many decisions. Some people denounce objective tests because, after inspecting a few, they have decided that such tests measure knowledge of trivial and unimportant details. Most thoughtful critics would admit, after discussion, that such tests also measure knowledge of items that are significant or essential for understanding. It is important, both practically and theoretically, to know whether inspectional techniques enable students to arrive at valid opinions as to which items are good and which are bad.

Discussions by persons who are experienced in the uses of tests provide statements which shed some light on the matter. Anastasi (1) for example has pointed out that inspectional techniques are not adequate for judging the validity of tests. Ross (11) has indicated that test items can be markedly improved by editorial manipulation, not just by the mechanics of elimination of errors, but through selection of the items that are more worth while.

The data presented here indicate that tests might be made more acceptable to students by selection of items in the light of student criticism. This is true because there is considerable agreement among groups, in the ratings assigned to items.

This is not to say that one should go too far in the direction of selecting items that are given high ratings by students. The lack of relationship of the ratings to the statistical measure of item-discrimination-power must be remembered. The tendency of students to assign higher ratings to the

easier items, with more obvious implications, is also a qualifying consideration. The point to be remembered by the test-maker is that the ratings may have some positive values, even though they are not valid as predictors of the specific statistical variables included in this study. The point to be remembered by the student is that his opinion of a test item may be bad because of his ignorance of essential facts or principles.

## Conclusions

A mid-term examination consisting of 100 true-false items was administered to a group of 89 students in a course on tests and measurements. The test was item-analyzed in order to obtain the two well-known measures of item-difficulty and of discrimination power of items. Items in the test were rated by the students, for their importance, value and significance, as opposed to their possible triviality. Comparison of the rating data and the results of the item-analysis leads to the following conclusions:

1. There is marked agreement among students as to which items in an objective test are measuring important aspects of achievement, and which are trivial.

2. The opinions of an individual student are unreliable. Fairly large groups of raters are needed in order to achieve reliable measures of the rated importance of the items.

3. The rated significance of the test items is not a valid predictor of the discrimination power of the items.

4. Students tend to give more favorable ratings to items which are easy and fairly obvious in their face validity.

The evidence suggests that students of average and high achievement can furnish ratings of items which are more insightful than those provided by students of low achievement.

The way in which a test item functions is dependent upon the inter-relationships among facts in the achievement field. Hence it might be suggested that insightful and valid rating of the triviality or importance of objective test items demands that the rater's knowledge of facts and principles in the field in which the test is used be comprehensive and penetrating.

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The School Library Association of California has made a significant step toward school library progress in California with the adoption of "Minimum Standards" for elementary school libraries at its state convention in November, 1954. This is the result of more than four years of intensive study. A special committee of the Association, assisted by the California Teachers Association research staff, and with the endorsement of the California Elementary School Administrators' Association and the California Association of School Administrators, is now making a survey of library practices in elementary schools of the State.

The objectives of the study are: (1) To give status to elementary school libraries as a vital aspect of California education; (2) To provide a reliable survey of current situations in elementary schools to check against the SLAC approved standards; (3) To discover any variations that exist between generally accepted school library standards and actual practices; (4) To determine the need for some provisional formula for certification of school librarians not now holding the full 24 units library credential; (5) To determine the need for the provision of school library consultancy service by the State Department of Education.

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The Department of Classroom Teachers of the National Education Association is publishing a series of booklets on "What Research Says to the Teacher." This series is being prepared with the cooperation of the American Educational Research Association. The fifth in the series is *Personality Adjustment of Individual Children* by Ralph H. Ojemann of the State University of Iowa.

# THE GIFTED CHILD

## An Annotated Bibliography

J. C. GOWAN and MAY SEAGOE GOWAN

The pendulum of professional interest in the education of the gifted child has swung back with increasing momentum during the last few years. With this increasing interest and activity, standard bibliographies on the subject have become rapidly less satisfactory. This has been true, both with respect to up-to-date completeness and with regard to emphasis, for there has been a shift away from theoretical studies relating to characteristics, needs, and proposed programs, in favor of descriptions of actual classroom procedures, and of practical applications. There has in addition grown up an urgent need for communication between the various agencies, both state and local, seeking to deal with this problem.

Much that is newly written or discovered is not communicated or published widely enough to gain acceptance. Standard bibliographies such as those in *Review of Educational Research*, *Encyclopedia of Educational Research*, or *Psychological Abstracts* lag seriously. The best complete annotated extant bibliography, that compiled by Elise Martens and published in *The Gifted Child* edited by Paul Witty in 1951, is now significantly incomplete five years afterward.

As a result of this lack students find themselves handicapped in research by not knowing where to turn, and administrators and teachers need a

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*This bibliography is an attempt to bring up to date the bibliography compiled by Elise H. Martens for The Gifted Child which Paul Witty edited for the American Association for Gifted Children in 1951. The present list also includes some items published before 1951 which were omitted from Martens' compilation. The present authors gratefully acknowledge their indebtedness in the preparation of this paper to help of various kinds received from Mary E. Albers, George Banks, Daphne Bugental, John Caffrey, Elsie Gibbs, Catherine Makoul, Ruth Martinson, T. Ernest Newland, Helen Roberts, and Stein Steinson.*

*This bibliography is complete to the end of 1954. Since its preparation at least one important new publication has appeared in the form of the January, 1955, issue of the Bulletin of the National Association of Secondary School Principals, which is titled "The Education of Handicapped and Gifted Pupils in the Secondary School." Chapter 2 (pages 15-24) is devoted to "The Education of the Superior High School Student."*

*The authors will appreciate their attention being called to any other significant omissions.*

simple up-to-date guide to assist them in learning what the best current practices are. It is further probable that the next few years will see increased interest and experimentation in this area for which a background of recent research results may be most helpful. For these and other reasons, it is felt desirable to provide a briefly annotated comprehensive bibliography of writings on the education of gifted children.

In building such a bibliography the authors have had certain considerations constantly in mind. In view of the excellent start made in *The Gifted Child*, it has been their decision to build upon the carefully annotated bibliography found in this volume, (191), and with rare exceptions to include no citation found therein. These exceptions have included those occasional writings of particular significance to California educators, such as Terman's works. In general, the emphasis has been on supplementing the original by 1) an exhaustive consideration of the literature since 1950 and 2) a number of significant writings before 1950 which were not included. Consideration has also been given to the practical use of such material in the implementation of school programs for the gifted, and hence articles on ability grouping, such as (68), on enrichment in mathematics, such as (13), on thinking, such as (32), and on guidance, such as (11), to name but a few, have been included although their range is perhaps wider than the category formerly assigned to the education of gifted children.

The observant reader will also note that there is at present somewhat less tendency to regard the gifted child as a clinical case and more concern to assimilate him as a social being; the words "genius" and "IQ" are used less, and the words "high achiever" and "superior learner" are used more, and this change in emphasis is evident in the types of studies published in recent years.

The area on enrichment and acceleration has been explored carefully in view of the fact that acceleration as a method of procedure has recently begun to emerge from a considerable period of disuse after the many studies of the twenties. In view of the needs expressed by the California Advisory Council on Educational Research, and the Subcommittee of the Governor's Committee for Education of The Gifted, special attention has been devoted to detailing as much as is available regarding California practices of city and county school districts.<sup>1</sup>

This bibliography, unlike that in the Witty book, is published alphabetically *in toto*, and not broken into sections. To enable those who may have special interests, the sections enumerated in *The Gifted Child* are here

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<sup>1</sup>California practices are detailed in citations 38, 39, 40, 42, 67, 93, 102, 103, 104, 109, 110, 114, 150, 153.

repeated, with additional subsections, together with lists of citations pertaining to them. No citation has been assigned to more than one section.<sup>2</sup>

### Citations Grouped by Major Categories

1. **General or Overall Considerations**  
2, 34, 50, 59, 60, 63, 65, 71, 74, 77, 87, 98, 99, 100, 126, 175, 182, 183, 186, 187, 189, 191, 192, 199.
2. **Philosophy and Objectives; Theory and Policies**  
1, 29, 30, 31, 43, 45, 46, 51, 72, 75, 85, 89, 94, 96, 97, 105, 107, 112, 113, 115, 116, 121, 134, 143, 152, 166, 177, 190, 193, 195, 196.
3. **Physical, Mental, Emotional, and Social Traits**  
3, 5, 8, 12, 13, 17, 22, 23, 24, 25, 27, 53, 64, 80, 82, 83, 86, 106, 110, 111, 120, 123, 125, 131, 135, 144, 148, 149, 157, 158, 160, 161, 162, 165, 167, 168, 169, 170, 171, 172, 173, 174, 188, 197, 198.
4. **Organization of Local Projects**
  - .1 *general (including enrichment)*, see also 5.1 and 5.2  
6, 41, 42, 73, 76, 81, 91, 92, 103, 104, 109, 110, 133, 140, 147.
  - .2 *acceleration*  
37, 48, 49, 141, 181, 185.
  - .3 *grouping or special classes*  
7, 10, 15, 38, 68, 114, 138, 153, 179.
  - .4 *college and acceleration into college*  
9, 21, 62, 90, 101, 118, 127, 155.
5. **Curriculum Adjustments**
  - .1 *elementary*  
18, 37, 44, 78, 79, 102, 108, 124, 132, 154.
  - .2 *secondary (general)*  
36, 40, 52, 67, 115, 129, 146, 150.
  - .3 *English and reading*  
4, 32, 39, 57, 70, 84, 93, 159, 163, 180.
  - .4 *art and music*  
69, 119.
  - .5 *mathematics and science*  
13, 16, 33, 47, 54, 61, 117, 136, 142, 144, 176.
  - .6 *counseling and guidance, adjustment problems, underachievement*  
11, 19, 20, 26, 28, 66, 87, 137, 151, 164, 178, 200.
6. **Evaluation and follow-up studies, bibliographies**  
35, 55, 56, 58, 95, 128, 130, 139, 156, 184, 194.

<sup>2</sup>The administrator who wishes a quick comprehensive coverage of the field will find citations 59, 111, 115, 122, 124, 127, 147, and 191 particularly helpful.

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Children of superior intelligence found to engage in collecting, reading science, history and biography, and to play musical instruments. Children of lower intelligence found to have fewer and less diverse hobbies.

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Intelligence found not to be significantly related to moral judgment among college students.

14. Braun, L. *Some enrichment techniques for the above average student*. Mimeographed report, University of Denver Workshop, 1952.

Summarizes the results of the 1952 workshop. Presents material on teaching mathematics and science in some detail, together with good bibliography.

15. Breidenstine, A. G. "The educational achievement of pupils in differentiated and undifferentiated groups." *Journal of Experimental Education*, 5: 91-135, 1936.

Undifferentiated grouping found to result in very slightly superior educational achievement.

16. Brinkmann, H. W., "Mathematics in the secondary school for the exceptional student." *American Mathematical Monthly*, 61: 319-323, 1954.

Describes mathematics programs in secondary schools cooperating with the School and College Study of Admission with Advanced Standing of the Fund for the Advancement of Education.

17. Brown, L. P. and others. "Personality characteristics of exceptional children and their mothers." *Elementary School Journal*, 52: 286-290, 1952.

Finds highly gifted parents tend to be better adjusted than their highly gifted children.

18. Buck, R. R. "The gifted child in the heterogeneous class." *Journal of Exceptional Children*, 19: 117-120, 1952.

Describes the development of a program to meet the problems of the gifted child, using a multigraded class.

19. Burns, C. L. C. "Maladjusted children of high intelligence." *British Journal of Educational Psychology*, 19: 137-141, 1949.

Uses case studies to show how personality factors may hinder full expression of high intelligence.

20. Burnside, L. H. "Psychological guidance of gifted children." *Journal of Consulting Psychology*, 6: 223-228, 1942.

Reviews work with the gifted in Rochester, New York, and cites five points a guidance program must cover.

21. Canady, H. G. "Individual differences and their educational significance in the guidance of the gifted and talented child." *Quarterly Review of Higher Education Among Negroes*, 5: 202-205, 1937.

A presentation of the need for special provisions for the gifted based on a study of freshmen entering West Virginia State College.

22. Carroll, H. A. "Appreciation of literature and abstract intelligence." *Journal of Educational Psychology*, 25: 47-54, 1934.

Correlations between Terman Group Test and Carroll Prose Appreciation Test are presented.

23. Carroll, H. A. *Generalization of bright and dull children*. New York: Teachers College Columbia University Contributions to Education No. 439, 1930.

Analysis of spelling errors showed differences between bright and dull, attributed to superiority of bright in phonetic generalization.

24. Carroll, H. A. and Eurich, A. C. "Abstract intelligence and art appreciation." *Journal of Educational Psychology*, 23: 214-220, 1932.

Abstract intelligence found to show little relationship to critical ability in art at the college level.

25. Chassell, C. F. *The relation between morality and intellect*. New York: Teachers College Columbia University Contributions to Education No. 607, 1935.

An extensive consideration of the relation between intelligence and morality, indicating generally low positive correlations.

26. Cohler, M. J. "Scholastic status of achievers and non-achievers of superior intelligence." *Journal of Educational Psychology*, 32: 603-610, 1941.

Mean I. Q. for non-achievers shown to be three points higher than for achievers. Effect of acceleration shown to be improved performance. Need for vital school experiences stressed.

27. Cole, L. and Morgan, J. J. B. "Bright and dull children." In *Psychology of Childhood and Adolescence*, 303-310. New York; Rinehart Company, 1947.

Describes characteristics and suggests educational treatment of the gifted child.

28. Conklin, A. M. *Failure of highly intelligent pupils*. New York: Teachers College Columbia University Contributions to Education No. 792, 1940.

Details emotional, motivational and other causes for scholastic failure in this group.

29. Cortage, C. "What you should know about gifted children." *California Parent Teacher*, 29: 12-13, 27, 1953.

Suggestions to teachers for making extracurricular activities enjoyable for both teacher and children.

30. Cortage, C. "Your invitation to a bright idea." *California Teachers Association Journal*, 49: 14-16, 1953

Methods of providing for the gifted are discussed; a combination of general and special education is suggested.

31. Crawford, W. L. and others. *What are we doing for the superior child?* Evanston: Northwestern University Reviewing Stand, 1952.

Authorities in education, psychology and psychiatry discuss the gifted child, his nature and his needs.

32. Culver Military Academy. *Thinking*. Culver, Indiana: Culver Military Academy, 1942.

An eighty-page pamphlet for student use describes methods of thinking: deduction, induction, analogy, analysis, synthesis and use of symbolism. Designed for use with superior learners. Points out precautions to be observed and gives examples of mistaken reasoning.

33. Cunningham, H. A. "Some challenging problems in teaching high school science to gifted children." *School Science and Mathematics*, 52: 373-380, 1952.

Details specifics in this important area of science teaching.

34. Cutts, N. E. and Moseley, N. *Bright children, a guide for parents*. New York: Putnam's Sons, 1953.

Helps for parents in judging their own children's level, in understanding connected problems, and in helping such children at home and at school.

35. Cutts, N. and Moseley N. "Bright children and the curriculum." *Educational Administration and Supervision*, 39: 168-173, 1953.

Reports results from 160 children in grades two to 12 on subjects liked best and least and found hardest, and on acceleration. Mathematics ranked highest in all categories. There was little acceleration.

36. Cutts, N. E. and Moseley, N. "Providing for the bright child in a heterogeneous group." *Educational Administration and Supervision*, 39: 225-230, 1953.

Comments from 38 Connecticut teachers on provisions for bright pupils, including ability grouping within class, projects, special assignments, and individual work with teacher. Acceleration was unpopular.

37. Cutts, N. E. and Moseley, N. "Should we allow children to skip grades?" *Better Homes and Gardens*, 31: 204-205 seq., 1953.

Discusses the problem of acceleration.

38. Danielson, C. L. "Opportunity classes for gifted children." *Education for Victory*, 3: 7-8, 1945.

Describes program for gifted children in Los Angeles public schools, including pupil selection, teacher qualification, curriculum adjustments, teaching methods and individual interests.

39. Danielson, C. L. "Special classes for superior children in a far-western city." *National Elementary Principal*, 19: 388-396, 1940.

Presents provisions for gifted children in the Los Angeles school system. Use of "opportunity classes" found to meet needs of gifted children and relieve teachers in regular classes.

40. Danielson, C. L. "A study of the effect of a definite course of reading in general literature upon achievement in content subjects with chil-

dren of superior mental ability." *Journal of Educational Psychology*, 20: 610-621, 1929.

Intellectually superior children found to reach a higher level of achievement if a more varied and extensive reading program is substituted for the conventional study course.

41. Denver City Schools. *Enrichment projects*. Mimeographed report, Department of Instruction Denver City Schools, 1954.

Tells of specific projects for enrichment at various grade levels.

42. Drag, F. L. "The gifted child: a report of practices in California cities." *California Journal of Elementary Education*, 10: 8-28, 1941.

Provisions for gifted children in various California schools are presented; emphasis is placed on need of training the gifted for leadership.

43. Dunlap, J. M. "We meet the needs of all except the gifted child." *Nations Schools*, 45: 46, 1950.

Discusses need for and failure to provide constructive action in meeting needs of gifted.

44. Dvorak, A. and Rae, J. J. "A comparison of the achievement of superior children in segregated and unsegregated first-grade classes." *Elementary School Journal*, 29: 380-387, 1929.

Study of superior pupils in special and in regular classes which had enrichment according to teachers' feelings. Methods adapted to needs bring greater achievement, but homogeneous grouping in itself does not increase achievement. Teacher and course of study must be adapted to group.

45. Edman, I. "The elite among us." *Saturday Review of Literature*, 32: 9-10, 41-42, September 10, 1949.

Tells of need to conserve natural reserves of talent.

46. Educational Policies Commission. *Education of the gifted*. Washington, D. C.: National Education Association, 1950.

Discusses characteristics of gifted children, analyzes needs, and suggests procedures.

47. Ellison, J. "Are your children gifted?" *Saturday Evening Post*, 223: 40-41, 96-105, June 16, 1951.

Deals with need for scientific talent and reviews work of National Science Foundation and its scholarship program.

48. Engle, T. L. "Achievement of pupils who have had double promotions in elementary school." *Elementary School Journal*, 36: 185-189, 1935.

Follow-up five years later of previous study through questionnaire on educational and vocational achievement. Accelerated boys continued school longer and earned higher median salaries than non-accelerated. Accelerated girls left school earlier and earned lower median salaries than non-accelerated. Total accelerated group higher than non-accelerated.

49. Engle, T. L. "A study of the scholastic achievements in high school of pupils who have had double promotions in elementary school." *Elementary School Journal*, 31: 132-135, 1930.

Study of children in high school who had received double promotion in elementary school compared with those not accelerated. Accelerated did better on the average.

50. Epstein, M. "Teachers look at gifted children." *Peabody Journal of Education*, 31: 26-34, 1953.  
A seminar summary, including a poll conducted by the class.
51. Eshelman, M. E. "Our advanced students." *English Journal*, 37: 419-421, 1948.  
Discusses importance of meeting needs of gifted students in order to develop wise leadership.
52. Evans, N. D. "How England provides for the exceptionally intelligent child in the secondary school." *Exceptional Children*, 17: 40-43, 63, 1950.  
Discusses current practices in England, including careful grouping according to ability for various subjects, more favorable teacher-pupil rates and enriched program of activities.
53. Farrell, M. "Understanding the time relations of 5, 6 and 7 year old children of high I. Q." *Journal of Educational Research*, 46: 587-594, 1953.  
Explores the time sense of 75 children of average I.Q. 145, indicating that time relations seem to increase between five and six more than between six and seven.
54. Fehr, H. F. "Student gifted in math." *National Education Association Journal*, 43: 222, 1954.  
Tells need to channel gifted into mathematics and science.
55. Flesher, M. A. "Did they graduate too young?" *Ohio State University Educational Research Bulletin*, 24: 218-221, 1945.  
A comparison of records of "young" and "older" graduates showed the younger to be equal or superior in securing advanced degrees, employment, salaries and the like.
56. Fliedner, L. J. "Comparison of the achievement of an honor school class and a regular class in chemistry." *High Points*, 28: 67-70, 1946.  
Reviews specific comparisons in achievement.
57. Flynn, E. L. "For the superior reader." *Library Journal*, 79: 492-495, 1954.  
Discusses ways librarians can help students of superior mental ability enjoy and use the library.
58. Freeman, F. N. "The treatment of the gifted child in the light of the scientific evidence." *Elementary School Journal*, 24: 652-661, 1924.  
Compares aims and results of studies in acceleration and enrichment and concludes they are interrelated. Notes other special provisions.
59. Fund for the Advancement of Education. *Bridging the gap between school and college*. New York: Fund for the Advancement of Education, Ford Foundation, 1953.  
States objective of Fund as gaining greater flexibility. Describes four projects: acceleration at Andover, enrichment at Portland, admission with advanced standing at Kenyon, and early admission from tenth and eleventh grades at Chicago. Follow-up studies of Fund scholarship holders show no ill effects, and superior achievement in college classes. Stresses problem of gifted as part of other important educational issues.

60. Garrison, K. C. "Gifted children." In *The psychology of exceptional Children*, 203-278.

Reviews other writings in the field.

61. Gebhart, J. W. "Providing a challenging program in mathematics and science for pupils of superior mental ability." *School Science and Mathematics*, 52: 335-338, 1952.

Gives specific details on science programs for the gifted.

62. *General Education in School and College*. Cambridge: Harvard University Press, 1952.

A report by a committee including faculty members from Andover, Exeter, Lawrenceville, Harvard, Princeton and Yale. A discussion of the Andover plan, and of the need for eliminating duplication and waste time between secondary school and college.

63. Gesell, A. L. *Exceptional children and public school policy; including a mental survey of the New Haven elementary school*. New Haven: Yale University Press, 1921.

Presents survey of 24,000 school children. Discusses subnormal and superior mentalities and reviews state policy regarding education of exceptional children.

64. Gillingham, A. "Superior children: their school progress." *Journal of Educational Psychology*, 11: 327-347, 1920.

Includes case reports and statistical studies. Lists unfavorable characteristics sometimes associated with brightness. Suggests "mental nourishment" rather than acceleration.

65. Gossard, A. P. *Superior and backward children in public schools*. Chicago: University of Chicago Press, 1940.

Reports material gathered from annual reports of superintendents and boards of education, 1870-1937. Makes no suggestions nor recommendations.

66. Gowan, J. C. "The gifted underachiever: a problem for counselors." *Journal of Exceptional Children*, to be published in 1955.

Gives the gist of research conducted by classes of experienced school personnel in Beverly Hills and Santa Monica. Points out ways in which gifted underachievers are distinguished in home background, habits and other characteristics. Suggestions for dealing with the underachiever are discussed.

67. Gowan, J. C. and Wilbar, M. "The Santa Monica program for the superior learner." *California Journal of Secondary Education*, to be published in 1955.

Discusses program at Santa Monica which utilizes sectioning, enrichment, and in-service work with teachers.

68. Gowan, M. S. "Why homogeneous grouping." *California Journal of Secondary Education*, 30: 22-28, 1955.

Points up the practical importance of homogeneous grouping in handling all types of deviants including the gifted. "Homogeneous" is defined in a sense broader than ability grouping.

69. Greene, L. B. "Creative art teaching and the gifted high school student." *California Journal of Secondary Education*, 28: 197-202, 1953.

Tells of creative art program for the gifted in Santa Monica.

70. Gregory, M. and McLaughlin, W. J. "Advanced reading for the bright child." *Clearing House*, 26: 203-205, 1951.  
Considers the reading problem for outstanding students.
71. Guilford, J. P. "Creativity." *American Psychologist*, 5: 444-454, 1950.  
A description of problems of testing for creativity, proposed factors, and pre-plans for factor analysis studies.
72. Hattery, L. H. "Why waste talent?" *School and Society*, 71: 81-84, 1950.  
Cites causes for loss of talent as inferior instruction, lack of individual attention, uncorrected physical defects, economic hardships, insufficient or poor guidance, and lack of motivation.
73. Havighurst, R. J. and others. *A community youth development program*. Chicago: University of Chicago Supplementary Educational Monographs No. 75, 1952.  
Details procedures of the Quincy project. Resources of volunteer members of the community were elicited to add their special skills in enrichment. Identification began in fourth grade and special classes were set up. In-service training of teachers also was provided.
74. Heck, A. O. "The education of gifted children. . . ." In *The Education of exceptional children*, 389-440. New York: McGraw-Hill, 1940.  
Contains four chapters on the education of the gifted, titled "The education of gifted children," "Problems faced in educating gifted children," "The challenge of the gifted child," and "Education of specially gifted children."
75. Heilman, R. B. "Lowest common denominator." *Journal of Higher Education*, 20: 227-233, 280, 1949.  
Points out danger in the trend of attention from the few to the many in American democracy.
76. Hildreth, G. H. and others. *Educating gifted children at Hunter College Elementary School*, New York: Harper Brothers, 1952.  
A report of the organization, materials and teaching methods used in the experimental school for the gifted. A valuable reference on special classes with useful suggestions for the teacher who wishes to "enrich."
77. Hildreth, G. and Ingram, C. P. "Selected references from the literature on exceptional children." *Elementary School Journal*, 42: 688-705, 1942.  
Bibliography classified by type of deviation. Commentary on trends in literature on mentally exceptional and physically handicapped also included.
78. Hollingworth, L. S. "An enrichment curriculum for rapid learners at Public School 500; Speyer School." *Teachers College Record*, 39: 296-306, 1938.  
Describes enrichment units and special work such as education for leisure time and handicrafts.
79. Hollingworth, L. S. "The founding of Public School 500: Speyer School." *Teachers College Record*, 38: 119-128, 1936.  
Describes development of an experimental school. Problems of the slow learner and the intellectually gifted were studied with the goal of individualization of instruction.
80. Hollingworth, L. S. "Musical sensitivity of children who test above 135 I.Q." *Journal of Educational Psychology*, 17: 95-107, 1926.

Intellectually superior children shown not to be superior in musical sensitivity as measured by tests used in this study.

81. Hollingworth, L. S. "Problems of relationship between elementary and secondary schools in the case of highly intelligent pupils." *Journal of Educational Sociology*, 13: 90-102, 1939.

Deals with problems of Terman classes at Public School 500. Feels special provisions more necessary at elementary than high school level. Stresses need for special educational program for children of I.Q. 170 and above.

82. Hollingworth, L. S. "The Terman classes at Public School 500." *Journal of Educational Sociology*, 10: 86-90, 1936.

Describes fifty pupils with I.Q.'s over 130 in two classes at the school. Strongly urges special training for all such gifted children.

83. Hollingworth, L. S. and Cobb, M. V. "Children clustering at 165 I.Q., and children clustering at 146 I.Q. compared for three years in achievement." In *Twenty-seventh Yearbook of the National Society for the Study of Education, Part II*, 3-33. Bloomington: Public School Publishing Company, 1928.

Children clustering at 165 I.Q. found to be increasingly differentiated from children clustering at 145 I.Q. as complexity of tasks increases. Wide differences found between the two groups in achievement.

84. Holmes, J. A. "Gifted adults can learn to read faster." *California Journal of Educational Research*, 4: 103-110, 1953.

Reports a study in which business executives improved reading ability by 160 words per minute in an average of five sessions.

85. Horn, J. L. *The education of exceptional children; a consideration of public school problems and policies in the field of differentiated education*. New York: Century, 1924.

Discusses the education of all exceptional children including the mentally superior. Suggests that undifferentiated education produces mediocrity and that bright children will not find their way unaided.

86. Hughes, W. H. "Relation of intelligence to trait characteristics." *Journal of Educational Psychology*, 17: 482-494, 1926.

Among the traits and attitudes studied, quickness of thought and memory showed the highest correlation with intelligence. Such traits as cooperativeness and trustworthiness showed the lowest correlations with intelligence.

87. Hurllock, E. "How to help the bright child." *Today's Health*, 29: 68-69, 1951.

Points out obstacles of possible laziness, non-conformity and inferior social adjustment, and mentions ways in which positive participation can be encouraged.

88. Ingram, C. P. and Kvaraceus, W. C. "Selected references from the literature on exceptional children." *Elementary School Journal*, 51: 454-466, 1951.

Describes acceleration, grouping, enrichment and elective courses as ways of providing for the gifted child.

89. Johnson, H. G. "Does the gifted child have a low A. Q.?" *Journal of Educational Research*, 36: 91-99, 1942.

The soundness and usage of the achievement quotient is questioned.

Low A.Q.'s of gifted children attributed to artifacts of derivation of the quotient rather than to a real phenomenon.

90. Jones, E. S. and Ortner, G. K. "Advanced standing for superior students." *National Education Association Journal*, 43: 107-108, 1954.

Describes how gifted children attain advanced college standing through examinations at the beginning of their college careers. Students approve the plan; follow-up shows no untoward results.

91. Jones, L. R. and others. *A plan for a program of special education in Denver*. Mimeographed report, Denver City Schools, 1952.

Describes the Denver program, which has given school principals and their staffs much freedom to work. Various experiments in enrichment, acceleration and homogeneous grouping have been carried out.

92. Jones, L. R. and others. *Supplement to the section on the mentally gifted in a plan for a program of special education in Denver*. Mimeographed report, Denver City Schools, 1954.

A coordinated program at all levels using resource personnel at the University of Denver is described. Cautious work by a number of schools which have been given freedom to develop their own patterns within a given frame of reference have resulted. Some employ enrichment, others grouping.

93. Jumper, W. C. "The gifted child in the high school." *California Journal of Secondary Education*, 26: 76-82, 1951.

Reports Modesto (California) study and experiment with special class in English. Stresses objectives need clear definition, and teaching personnel need special training.

94. Justman, J. "Obstacles to the improvement of teaching in classes for the gifted." *Exceptional Children*, 18: 41-44, 1951.

Reports questionnaire showing older teachers and those without experience with gifted groups have unfavorable attitudes toward special classes for the gifted, while younger teachers and those with experience with such classes register more favorable attitudes.

95. Justman, J. and Wrightstone, J. W. "Opinions of junior high school principals concerning the organization of special classes for gifted school children." *Educational Administration and Supervision*, 37: 396-404, 1951.

Provocative statements of administrators regarding this problem.

96. Kandel, I. L. "The conservation of talent." *School and Society*, 71: 347, 1950.

The "multilateral" or heterogeneous secondary schools advocated by the English Labor party are criticized as not meeting the needs of gifted pupils.

97. Kandel, I. L. "Education of the gifted." *School and Society*, 72: 123, 1950.

A favorable review of the Educational Policies Commission report on "Education of the gifted."

98. Kenny, H. A. "Bringing up the brightest child." *Coronet*, 26: 102-106, 1949.

Discusses importance of a well-adjusted personality to the success of the gifted child, together with parental and school functions in achieving this.

99. Kent State University. "Conference on mentally superior children." *Kent State University Bulletin*, 38: 1-31, 1950.  
Contains discussion of Mid-west practices with gifted children.
100. Kent State University. *The role of the parent in the education and training of the mentally superior child*. Kent, Ohio: Kent State University, 1951.  
Suggests some ways parents can cooperate with the school in the guidance of gifted children. Covers such factors as emotional adjustment, human relations, health and physical education, hobbies, creative expression, and guidance.
101. Knapp, R. H. and Greenbaum, J. J. *The younger American Scholar: his collegiate origins*. Chicago, University of Chicago Press, 1953.  
Reports the collegiate origins of outstanding young American scholars, showing production of promising scholars disproportionately high from institutions of high cost, that universities and liberal arts colleges cannot be distinguished in productiveness, and explores possible reasons for findings.
102. Kravetz, N. A. *A study of the education of gifted children in the Los Angeles City Elementary Schools*. Unpublished doctor's dissertation, University of California, Los Angeles, 1954.  
A study of provisions for gifted children in the Los Angeles schools.
103. Kyte, G. C. "Two types of experimental programs in the education of gifted children and their ultimate effects." In *Yearbook of the Department of Elementary School Principals*, 395-430. Washington, D. C.: National Education Association, 1924.  
Reports two types of progress at Emerson School at the University of California. Favorable results came from both the enrichment-and-rapid progress and the rapid progress programs.
104. Laugesen, R. M. *The Mill Valley report*. New York: National Citizens' Committee for Public Schools, no date.  
A survey of the Mill Valley, California, district made by the superintendent. Contains information on provisions for gifted children found there.
105. Laycock, S. R. "Helping the bright pupil." *School*, 30: 561-565, 1942.  
A discussion of acceleration, ability grouping, and enrichment as ways of helping the bright pupil.
106. Lewis, W. D. "The relative intellectual achievement of mentally gifted and retarded children." *Journal of Experimental Education*, 13: 98-109, 1944.  
A detailed examination of the tendency of the gifted to underachieve and of the retarded to overachieve.
107. Lewis, W. D. and McGehee, W. "A comparison of the interests of mentally superior and retarded children." *School and Society*, 52: 597-600, 1940.  
A number of significantly different hobby and extra-curricular activity participations are found in comparing mentally superior and retarded children. Suggestions for meeting the particular problems of both groups are included.
108. Liebman, M. "Our best minds were running errands." *National Education Association Journal*, 43: 35-36, 1954.  
Description of the enrichment program for fourth, fifth and sixth grade

- children in Dade County. Students attend regular classes in the morning and "research" classes in the afternoon.
109. Long Beach City Schools. *Identifying "very superior" pupils*. Mimeographed report, Long Beach City Schools, 1952.
- Reports a systematic city-wide screening of children recommended by teachers, counselors and administrators which yielded 364 pupils. Parents were asked to cooperate and group meetings held. Other documents have since given details of a well-conceived program.
110. Long Beach City Schools. *Report of the committee for the very superior pupil*. Mimeographed report, Long Beach City Schools, 1952.
- Presents objectives and procedures of the Long Beach experiment. The program has proceeded cautiously and attempted little segregation. Work with parents has been emphasized.
111. Loomis, G. I. *A survey of literature and research concerning the education of the gifted child with implications for school practice*. Mimeographed Curriculum Bulletin, University of Oregon, 1951.
- Lists valuable references, summarizes characteristics of the gifted, discusses special provisions for their education, and suggests school organization and procedure.
112. Lorge, I. "Social gains in the education of the gifted." *School and Society*, 79: 4-7, 1954.
- Champions segregation of the gifted.
113. Lorge, I. "Superior intellectual ability: its selection, education and implications." *Journal of Heredity*, 32: 205-208, 1941.
- A discussion of the importance of and methods of identifying gifted children at an early age.
114. Los Angeles City Schools. "Special classes in elementary schools." In *Fourth Yearbook of the Division of Psychology and Educational Research*, 67-124. Los Angeles: Los Angeles City School District, 1931.
- Reviews results of the special classes, including those for the gifted.
115. Los Angeles County Schools. *The more capable learner in the secondary school*. Los Angeles: Secondary Curriculum Monograph M-72 of the Office of the County Superintendent of Schools, 1951.
- An account of the progress made in the Los Angeles area in providing enrichment and other adaptations for superior learners.
116. McAdam, L. K. "Education for the gifted." *Phi Delta Kappan*, 32: 127, 1950.
- Reports a study of current practices in school systems, indicating inadequacies in providing for the gifted child. Acceleration reported more frequently than enrichment.
117. McCurdy, R. D. "Science seminar society in secondary schools." *School Executive*, 71: 64, 1951.
- Suggests meeting needs of superior students through a seminar-type science club.
118. MacLachlen, P. S. and Burnett, C. W. "Who are the superior freshmen in college." *Personnel and Guidance Journal*, 32: 345-349, 1954.
- Reports use of four criteria in selecting college freshmen of promise. At end of first quarter of freshman year the writers were satisfied they had found the top students.

119. Maezel, M. "What to do about the child prodigy." *Etude*, 68: 12-13, 60-61, 1950.  
Explores certain aspects of musical education for the talented.
120. Martens, E. H. "Gifted children: what do we know about them? What shall we do about them?" *Nation's Schools*, 47: 31-34, 1951.  
Identifies gifted children and points out the responsibilities of the schools and the community in meeting their needs.
121. Martens, E. H. "Studies in the education of gifted children." *California Journal of Elementary Education*, 20: 248-253, 1952.  
Discussion of the nature of research on the gifted child being done by teachers, administrators, teacher-training institutions, and communities.
122. Martens, E. H. *Teachers' problems with exceptional children: II. Gifted Children*. Washington, D. C.: United States Office of Education Pamphlet No. 41, 1933.  
A discussion of problems of and methods for working with exceptional children on a practical basis.
123. Martentz, I. "Understanding unusual children." *The Grade Teacher*, 69: 16-17, 1951.  
Characterizes the gifted and cites types of activities and guidance desirable for them.
124. Martinson, R. A. and others. *Study of the gifted child*. Sacramento, California Congress of Parents and Teachers, 1952.  
A comprehensive statement of various needs and provisions for gifted children, with special emphasis on the elementary school.
125. Mensh, I. N. "Rorschach study of the gifted child." *Journal of Exceptional Children*, 17: 8-14, 1950.  
Reviews patterns of gifted children and interprets variations from the norm.
126. Miles, C. C. "Gifted children." In *Manual of child psychology* (Ed. L. Carmichael), 886-953. New York: John Wiley and Sons, 1946.  
A factual, comprehensive report on gifted and highly gifted children.
127. Mitchell, J. P. and others. "State scholarships for superior students." *California Journal of Secondary Education*, 25: 489-493, 1950.  
Advocates use of state funds for scholarships for the gifted.
128. National Committee on Coordination in Secondary Education. "Report of the evaluating committee on the education of gifted children in secondary schools." *Journal of Educational Sociology*, 13: 120-126, 1939.  
Report on the nature of gifted children, the place they should assume in society, the educational program, and suggestions from the committee. Experimental studies and special educational provisions are needed.
129. National Education Association. "High school methods with superior students." *National Education Association Research Bulletin*, 19: 155-197. 1941.  
A summary of methods used over the nation with students of superior ability.

130. Newland, T. E. "The gifted." *Review of Educational Research*, 23: 417-431, 1953.

Summarizes 80 research studies on the gifted covering the period 1944 to 1953. Indicates greater interest in social contributions of gifted people and more curiosity on the nature of ability. Extensive bibliography.

131. Nolan, E. G. "The gifted student: his problem and ours." *California Journal of Secondary Education*, 22: 180-183, 1947.

Discussion of identification and problems of the gifted child, including curriculum modification, creative abilities, special interests and the like.

132. Norris, D. "Planning for your gifted children." *The Instructor*, 61: 83, 119, 1951.

Reviews special projects and methods in reading, arithmetic, spelling, and research type work.

133. Norris, D. E. "Tailor-made for high I.Q.'s." *National Education Association Journal*, 42: 276-277, 1953.

Cleveland's plan to improve the curriculum for gifted children by 42 "major work" and enrichment classes. Also tells how gifted children are identified for special classes.

134. Oliver, A. I. "Administrative problems in educating the gifted." *Nation's Schools*, 48: 44-46, 1951.

Points out responsibility toward the gifted. Recommends more student planning and evaluating, setting higher standards of accomplishment, enlarging first-hand experience, and developing civic responsibility.

135. Peachman, M. C. "Attitudes: their significance in the education of the gifted." *Journal of Educational Psychology*, 33: 183-198, 1942.

Discusses attitudes as expressed in literature or by parents, gifted children, educators and society. Shows how attitudes reflect in the gifted child's learning.

136. Peckham, E. F. "Providing a challenging program in mathematics and science for pupils of superior mental ability." *School Science and Mathematics*, 52: 187-193, 1952.

Discusses special problems in teaching mathematics and science to the gifted.

137. Pluth, W. "The plight of the exceptional child." *California Teachers Association Journal*, 46: 8, 1950.

Describes a group of bright boys who meet weekly for general discussion, and what came of it.

138. Polkinghorne, A. R. "Grouping children in the primary grades." *Elementary School Journal*, 50: 502-508, 1950.

Discusses problems involved in providing special classes for the gifted at this level.

139. Portenier, L. "A twelve year study of differentiated groups of high school pupils." *Journal of Educational Psychology*, 29: 1-13, 1938.

Exceptional and poor students, judged by teachers' estimates and other criteria, were compared twelve years later for success in employment, social adjustment, and the like. The superior group surpassed the inferior, though the latter had made a satisfactory adjustment.

140. Pregler, H. O. "The Colfax plan." *Exceptional Children*, 20: 198-201, 1954.

Tells of use of acceleration, enrichment and grouping with elementary school children at Colfax, Pennsylvania. Spanish and typing were added to the curriculum.

141. Pressey, S. L. *Educational acceleration: appraisals and basic problems*. Columbus: Ohio State University Press, 1949.

States the basic reasons for acceleration and notes some of the problems related to it.

142. Price, G. B. "Mathematics program for the able." *Mathematics Teacher*, 44: 369-376, 1951.

Discussion of adaptations in teaching mathematics to the gifted.

143. Pritchard, M. "Total school planning for the gifted child." *Exceptional Children*, 18: 107-110, 128; 143-147; 174-180; 1951-1952.

A program is suggested for discovering the gifted and developing methods for meeting their learning needs.

144. Pyle, W. H. and Snadden, G. H. "An experimental study of bright and dull high school pupils." *Journal of Educational Psychology*, 20: 262-269, 1929.

Stresses fallacy of averaging mental traits and presents experimental evidence. Specific abilities vary widely in both dull and bright pupils.

145. Renhed, E. *Science Talent Search*. Unpublished master's thesis, University of California, Los Angeles, 1950.

A description of the origins and procedures of the annual Science Talent Search.

146. Rex, B. R. "The gifted child in the heterogeneous class." *Exceptional Children*, 19: 117-120, 1952.

Discusses several projects found practical in average classrooms which challenged the most capable learners.

147. Roberts, H. *Current trends in the education of the gifted*. Mimeographed bulletin, California State Department of Education Division of Guidance, 1954.

Report by a Ford Foundation fellow of programs in operation throughout the United States including elementary through college levels, based on personal observation. A comprehensive guide to the national educational scene with respect to present practices with gifted children.

148. Root, W. T. "A socio-psychological study of fifty-three supernormal children." *Psychological Monographs*, 29: No. 1, 1921.

A comparison of "supernormal" children on the Binet and other tests, school records, health, home training and the like.

149. Ross, R. R. *Relations between intelligence, scholastic achievement, and musical talent*. Claremont: California Bureau of Juvenile Research, 1937.

Presents low positive correlations between intelligence and scholastic achievement and musical talent. They were too low to have individual predictive value.

150. San Diego City Schools. *Enrichment for gifted students in the secondary school*. Mimeographed report, San Diego City Schools, no date.

Gives details of procedures for enrichment which have been successful at the high school level.

151. Sanford, E. G. "The bright child who fails." *Understanding the Child*, 21: 85-88, 1952.  
Considers boredom, lack of motivation, home problems as causes of educational maladjustment in the gifted child.
152. Scharer, N. B. "How can the school meet needs of gifted and superior students?" *National Association of Secondary School Principals Bulletin*, 36: 99-109, 1952.  
An administrator's view of the problem.
153. Scheidemann, N. V. and Smith, M. S. "A survey of an opportunity room for gifted children." *Journal of Educational Psychology*, 24: 392-395, 1953.  
Discusses early (1924-1930) work at Los Angeles and elsewhere in providing special rooms for gifted children.
154. Scheifele, M. *The gifted child in the regular classroom*. New York: Teachers College Columbia University, 1953.  
Indicates the needs, process of identification, and provisions for enrichment with gifted children. Need for cooperation between parents and teachers is stressed.
155. *School and college study of admission with advanced standing. Bulletin of Information*. Philadelphia: Office of the Executive Director of the School and College Study, 1952 and 1954.  
Edited by President Chalmers of Kenyon College, it takes the stand that colleges waste bright students' time, that the best teachers of seventeen-year-olds are as often found in secondary schools as colleges, and that the increased need of manpower for the professions puts increasing emphasis on the efficient use of time.
156. Sea, M. *Reactions of gifted high school pupils to elementary education*. Unpublished doctoral dissertation, University of Southern California, 1952.  
Evaluates the achievement of selected gifted pupils in senior high schools of Los Angeles, presents their reactions to their educational experiences and draws implications. A majority of those who had been accelerated thought it had been beneficial. The largest percentage of high grades came from those with special or segregated class experience.
157. Seegers, J. C. "Teaching bright children." *Elementary School Journal*, 49: 511-515, 1949.  
Discusses needs of children with I.Q.'s of 135 to 170, and administrative measures to provide them with greater opportunities.
158. Sheldon, P. M. "The families of highly gifted children." *Marriage and Family Living*, 16: 59-81, 1954.  
Summarizes doctoral dissertation covering background and interests of very highly gifted children in New York.
159. Sheridan, M. C. "Teaching English to superior students." *National Education Association Journal*, 41: 566-567, 1952.  
Presents special problems and some possibilities for meeting them in teaching English to gifted students.
160. Silverman, M. M. and Silverman, M. "So that's what happens to child prodigies." *Saturday Evening Post*, 224: 22-23, February 2, 1952.

A popular presentation of Terman's follow-up on gifted children, showing they are well adjusted and prosperous adults.

161. Steinson, S. W. *The characteristics of mentally superior children*. Unpublished master's thesis, University of California, Los Angeles, 1942.

A comprehensive analysis of the literature on characteristics of the gifted. Extensive bibliography.

162. Steinson, S. W. *The training of mentally superior pupils in an urban senior high school*. Unpublished doctoral dissertation, University of California, Los Angeles, 1948.

An analysis of scholastic and other records of gifted students in a Los Angeles high school. Showed achievement less than commensurate with ability on all criteria.

163. Strang, R. "Gifted children need help in reading." *Reading Teacher*, 6:23-27, 1953.

Offers practical suggestions for assisting the gifted child who is neglected because he is at grade placement, through underachieving for him.

164. Strang, R. "Guidance of the gifted." *Personnel and Guidance Journal*, 31: 26-30, 1952.

States the counselor has the same role in the education of the gifted as in that of other children, though early identification is important.

165. Street, R. F. "The mentally superior child." *Journal of Exceptional Children*, 3: 83-86, 1937.

A comparison of gifted and bright children in grades four, five and six in Battle Creek. Shows superiority in general performance and adjustment as well as ability.

166. Sullivan, J. C. "Adequate education for the intellectually superior child." *Journal of Exceptional Children*, 13: 44-48, 59, 1946.

Stresses utilization of human assets at all intelligence levels, that leadership involves more than intelligence, and that education should develop abilities at all levels and teach pupils to work successfully with each other.

167. Terman, L. M. "The discovery and encouragement of exceptional talent." *American Psychologist*, 9: 221-230, 1954.

A review of the origins of interest in the gifted, methods of identification, and special problems of environment and education as they affect the fruition of genius.

168. Terman, L. M. "Earmarking the talented," *Science News Letter*, 65: 214, April 3, 1954.

Urges early spotting of talented children followed by speeded-up schooling for them. Points up need for more scientists and notes efficiency of small colleges in producing them.

169. Terman, L. M. "Educational suggestions from follow-up studies of intellectually gifted children." *Journal of Educational Sociology*, 13: 82-89, 1939.

Found that intellectual superiority persisted as did general superiority in follow-up of 1000 gifted; found that most sought higher education; suggests more financial aid for their education.

170. Terman, L. M. "A preliminary study in the psychology and pedagogy of leadership." *Pedagogical Seminary*, 11: 413-451, 1904.

Earliest Terman study analyzed leadership among animals, primitive races and children, and its relation to mental ability, paving the way for his later monumental work in the field of the gifted.

171. Terman, L. M. "Scientists and non-scientists in a group of 800 gifted men." *Psychological Monographs*, 68, 1954.

Discusses pertinent differences between these two groups of gifted.

172. Terman, L. M. "The occupational successes of intellectually gifted individuals." *Occupations*, 20: 493-498, 1942.

A follow-up of the 1922 gifted group shows superior achievement, with emotional stability, drive to achieve, happiness of temperament, and freedom from excessive frustration as major factors in success.

173. Terman, L. M. and Oden, M. "The significance of deviates, III: Correlates of adult achievement in the California gifted group." *Yearbook, National Society for the Study of Education*, 39 (I): 74-89, 1940.

Reports the 1938 follow-up of the 1922 group. Achievement was largely confined to males, and I.Q.'s above 140 contributed little to additional achievement.

174. Terman, L. M. and others. *Genetic Studies of Genius: Vol. I. Mental and Physical Traits of a Thousand Gifted Children; Vol. II. The Early Mental Traits of Three Hundred Geniuses; Vol. III. The Promise of Youth, Follow-up Studies of a Thousand Gifted Children; Vol. IV. The Gifted Child Grows Up; Twenty Five Years Follow-up of a Superior Group.* Stanford, California, Stanford University Press, 1925-1947, 4 Vols.

This famous series explores the abilities, background, interests, and later achievement of 1000 gifted in a major longitudinal study.

175. Tsanoff, R. A. *The ways of genius.* New York: Harper Company, 1949.

A study of the creative aspects of genius as found in primitive man, art, poetry, drama, science, law, social reform, religion and philosophy.

176. United States Office of Education. *Education for the talented in mathematics and science.* Washington, D. C.: Department of Health, Education and Welfare, 1952.

Describes methods of identification, classroom and extra-curricular activities for the gifted. Extensive bibliography.

177. University of Chicago Round Table. *Are the community and the school failing the unusual child?* Chicago: University of Chicago, 1952.

Presents a National Broadcasting Company discussion of the exceptional child by authorities. Much concerns gifted children and how the school and community can help them.

178. Wedemeyer, C. A. "Gifted achievers and non-achievers." *Journal of Higher Education*, 24: 25-30, 1953.

Shows 29 per cent of college students above the nintieth percentile in intelligence failed to attain significant achievement in scholarship or leadership because of emotional, educational, personal, financial or other problems.

179. Whipple, G. M., Henry, T. S., Hannel, H. T. and Coy, F. *Classes for gifted children; an experimental study of methods of selection and instruction.* Bloomington: Public School Publishing Company, 1919.

Studies organization of special classes, selection of pupils, adaptation of methods and the like. Control classes were used for checking results. Urges

great care in selecting gifted children and suggests teacher and pupil qualifications. Indicates that, when proper requirements are met, pupils in special classes can complete two years' work in one year, and at the same time be introduced to extra materials to enrich experience.

180. White, L. "School library and the gifted child." *Library Journal*, 78: 1480-1483, 1953.

Contents that the gifted, though generally overlooked in classes, should find challenge in the library through stimulating and useful books. Methods and procedures are discussed.

181. Wilkins, W. L. "Social adjustment of accelerated pupils." *School Review*, 44: 445-455, 1936.

Gives indirect evidence, based on their activities, for the social adjustment of accelerated pupils.

182. Williamson, P. B. "The American Association for Gifted Children: objectives and growth." *Understanding the Child*, 22: 121-124, 1953.

Summarizes the objectives and work of the association.

183. Williamson, P. B. "The American Association for Gifted Children: a progress report." *Understanding the Child*, 17: 53-55, 1948.

A preliminary statement of the objectives of the Association.

184. Wilson, F. T. *An annotated bibliography of research and educational studies at Hunter College Elementary School for young gifted children*. Mimeographed report. Hunter College, no date.

A somewhat parallel bibliography compiled about 1952.

185. Wilson, F. T. "The evidence about acceleration of gifted youth." *School and Society*, 73: 409-410, 1951.

Reviews studies of Terman, Oden and Keys, showing the effect of acceleration depends on timing and amount.

186. Wilson, F. T. "Preparation for teachers of gifted children in the United States." *Exceptional Children*, 20: 78-80, 1953.

Presents results of a survey at Hunter College on preparation of special teachers from the point of view of school administrators and training institutions.

187. Wilson, F. T. "Some musts in teaching intellectually gifted children." *Grade Teacher*, 68: 17, 1951.

Stresses identification, stimulating teaching, utilizing creative abilities, and guidance toward emotional maturity in the treatment of the gifted.

188. Wilson, F. T. "Some special ability test scores of gifted children." *Journal of Genetic Psychology*, 82: 59-68, 1953.

Shows gifted eleven-year-old children to be superior in abilities in art judgment, music, memory, science, and mechanical abilities as measured by seven different standardized tests.

189. Wilson, F. T. "Suggestions for the preparation of teachers of gifted Children." *Elementary School Journal*, 52: 157-161, 1951.

Lists six universities offering special courses for teachers of the gifted in 1951. Recommends a broad training for such teachers, placing specific courses in education in the fifth year.

190. Witty, P. "Educational provision for gifted children." *School and Society*, 76: 177-181, 1952.

Contents gifted children merit special educational attention, grow up

to be mentally superior, and become emotionally and socially well-adjusted adults.

191. Witty, P., ed. *The gifted child*. Boston: D. C. Heath, 1951.

A complete text with authoritative writers condensing and bringing together the best information available on gifted children and their education. The extensive annotated bibliography constitutes the base from which this is built.

192. Witty, P. *Helping the gifted child*. Chicago: Science Research Associates, 1952.

An illustrated pamphlet of lightly written facts for the layman.

193. Witty, P. "Nature and extent of educational provisions for the gifted pupil." *Educational Administration and Supervision*, 37: 65-79, 1951.

Presents overview of literature regarding extent and nature of educational provisions for the gifted child over a period of time. The heterogeneous-homogeneous grouping controversy is discussed. Evidence is cited for the recent increased interest in identification and education of the gifted.

194. Witty, P. "A study of the graduates of the 'Quiz Kid' program." *Educational Administration and Supervision*, 38: 257-271, 1952.

Reports questionnaire returns from nineteen boys and twelve girls, and offers the suggestions of the respondents for school programs for highly gifted children.

195. Witty, P. "What is special about special education—the gifted child." *Exceptional Children*, 19: 255-259, 1953.

Discusses identification, needs, and curriculum in terms of gifted children suggests a program allowing diversified experience and aiding in the attainment of social maturity geared to a rapid learning rate.

196. Witty, P. and Bloom, S. "Science provisions for the gifted." *Exceptional Children*, 20: 244-250, 262, 1954.

Notes need for early identification and special curriculum for the scientifically talented. Describes special programs at a dozen secondary schools throughout the country.

197. Witty, P. and Lehman, H. C. "The play behavior of fifty gifted children." *Journal of Educational Psychology*, 18: 259-265, 1927.

Shows versatility of play interests and numbers of each for the gifted. Shows gifted child more solitary in play, engages more in reading activities and less in extremely vigorous play.

198. Witty, P. and Lehman, H. C. "A study of vocational attitude and intelligence." *Elementary School Journal*, 31: 735-746, 1931.

Shows "bright" boys have more mature vocational attitudes than "dull" boys at ages eight to eighteen.

199. Wolfe, D. "Intellectual resources." *Scientific American*, 185: 42-46, 1951.

Contends the United States must train its potentially good brains if it is to enjoy its full intellectual resources.

200. Zorborough, H. W. and Boardman, R. K. "Salvaging our gifted children." *Journal of Educational Sociology*, 10: 100-108, 1936.

Discusses the methods and purposes of the New York University Clinic for the social adjustment of the gifted.

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## Book Reviews

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### THE PREDICTION OF SUCCESS IN STUDENT TEACHING From Personality and Attitude Inventories

John U. Michaelis. Berkeley and Los Angeles: University of California Press, 1954. 73 pp.

This publication reports a companion study to that of F. T. Tyler which was also published in 1954 by the University of California Press. Michaelis' study differs from Tyler's chiefly in the types of instruments and analysis used. Both studies were basically attempts to correlate the performance of student teachers on certain tests and inventories with their rated success in the classroom.

In this study, use was made of the Minnesota Multiphasic Personality Inventory, the Heston Personal Adjustment Inventory, the Minnesota Personality Scale, the Minnesota T-S-E Scale, and the Minnesota Teacher Attitude Inventory. These instruments were not used for the purpose of obtaining composite scores but rather for the collection of data to be treated in detail by statistical methods. An attempt was first made to find reliable subtests that could be used in predicting teaching success. Next, prediction by means of the discriminant function was attempted. Finally, prediction was tried through the use of multiple regression equations and multiple cutting scores. Following the study of predictive techniques and their reliability, item and factor analyses were made of selected items in the Minnesota Multiphasic Personality Inventory and the Heston Personality Adjustment Inventory.

This study found the same situation as previous ones. Namely, there is no reliable way to predict success in student teaching from personality and attitude test or inventory scores. Some correlations were found between certain subtest scores and teaching success which were significantly great to indicate the existence of a relationship between the factors measured and satisfactory classroom performance. The factor analysis indicated that social sensitivity and social introversion were the qualities most closely related to teaching success.

The author concludes that one reason for such inconclusive results was that the range of teaching ability found in the student teachers used in the study was too small. The individuals involved were a highly selected group representing only a narrow range in the qualities measured by the supervisors' ratings which were used as a criterion of teaching success.

## ACTION RESEARCH TO IMPROVE SCHOOL PRACTICES

Stephen M. Corey. New York: Bureau of Publications, Teachers College, Columbia University, 1953. 161 pp.

Professor Corey believes that the effects that the findings of formal educational research have on educational practices are much too little and too late. The chief remedy for this lies, he believes, not in wider dissemination of knowledge about research findings, but in wider use of research techniques by those actively engaged in educational work. As he says, "the view that educational research is the prerogative of the professional students of education is a limited one. . . . The thesis of this book is that teachers, supervisors, and administrators would make better decisions and engage in more effective practices if they, too, were able and willing to conduct research as a basis for these decisions and practices."

This leads directly to the author's definition of action research. As he puts it, "The process by which practitioners attempt to study their problems scientifically in order to guide, correct, and evaluate their decisions and actions is . . . action research." He points out that this term was first used outside the field of education in connection with activities relating to some of the other social sciences.

Dr. Corey indicates that the chief difference between the validity of the results of what he calls traditional research and that of the results of action research is to be found in the type of generalizations that can be made from them. In general, the results of traditional research are generalized laterally—that is, results obtained from a sample are assumed to apply to the entire present population from which the sample is drawn. But for action research, the results obtained in a given situation are assumed to hold for the corresponding situation at a future time. For example, the results obtained by action research in an eighth grade class this year are intended to be applied in dealing with future eighth grade classes under the same teacher in the same school. In the case of traditional research, such results would be used to draw conclusions about all eighth grade classes or students or teachers.

In addition to its role in producing immediate modifications in educational practice, Professor Corey also sees action research as a powerful tool for improving democratic relations in educational situations. In fact, it becomes difficult in the chapters of the book dealing with specific examples of action research to determine where research leaves off and morale-building begins. It is to be feared that some readers of the book will gain the impression that action research is a cure-all for low morale, lack of communication, and other staff problems. If this should lead to action research simply for the sake of going through the motions of teacher participation, group planning, and the like, it is doubtful that the author's intent will be achieved.





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